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Published:
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(54) Title: HUMANIZED ANTIBODIES THAT RECOGNIZE BETA AMYLOID PEPTIDE

(57) Abstract: The invention provides improved agents and methods for treatment of diseases associated with amyloid deposits of Aβ in the brain of a patient. Preferred agents include humanized antibodies.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/07503

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : A61K 39/395, 39/40, 39/42; C07K 16/00
US CL : 424/130.1, 141.1, 142.1; 530/387.1, 387.3, 388.1, 388.15
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 424/130.1, 141.1, 142.1; 530/387.1, 387.3, 388.1, 388.15

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004/0043418 A1 (HOLTZMAN ET AL.) 04 March 2004 (04.03.2004), entire document.	1-62 and 79-81
A	US 2004/0241164 A1 (BALES ET AL.) 02 December 2004 (02.12.2004), entire document.	1-62 and 79-81
A	US 2004/0265919 A1 (VANDERSTICHLELE ET AL.) 30 December 2004 (30.12.2004), entire document.	1-62 and 79-81
A	VANDERSTICHELE, H. ET AL. Standardization of Measurement of b-amyloid(1-42) in Cerebrospinal Fluid and Plasma. Amyloid: Int. J. Exp. Clin. Invest. December 2000, Vol. 7, No. 4, pages 245-258, entire document.	1-62 and 79-81
A	BACSKAI, B.J. ET AL. Non-Fc-Mediated Mechanisms Are Involved in Clearance of Amyloid-b In Vivo by Immunotherapy. The Journal of Neuroscience. 15 September 2002, Vol. 22, No. 18, pages 7873-7878, entire document.	1-62 and 79-81

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/07503

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-62 and 79-81 (drawn to the 3D6 antibody)

Remark on Protest
☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group 1, claim(s) 1-62 and 79-81, drawn to the 3D6 antibody, a method of preventing or treating an amyloidogenic disease in a patient comprising using the 3D6 antibody, and pharmaceutical compositions comprising same and a method of producing the 3D6 antibody or fragment thereof.

Group 2, claim(s) 63-71 and 138-141, drawn to an isolated polypeptide comprising SEQ ID NO: 2 and 4, variants comprising same.

Group 3, claim(s) 72-78, drawn to an isolated nucleic acid encoding the 3D6 antibody, vectors, and host cell comprising same.

Group 4, claim(s) 82-83 and 157-158, drawn to a method for identifying residues amenable to substitution in a humanized immunoglobulin variable framework region.

Group 5, claim(s) 84-137 and 154-156, drawn to the 10D5 antibody, a method of preventing or treating an amyloidogenic disease in a patient comprising using the 10D5 antibody, and pharmaceutical compositions comprising same and a method of producing the 10D5 antibody or fragment thereof.

Group 6, claim(s) 142-146, drawn to an isolated polypeptide comprising SEQ ID NO: 14 and 16, variants comprising same.

Group 7, claim(s) 147-153, drawn to an isolated nucleic acid encoding the 10D5 antibody, vectors, and host cell comprising same.

The inventions listed as Groups 1-9 do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group 1 is drawn to the special technical feature of 3D6 antibody, a method of preventing or treating an amyloidogenic disease in a patient comprising using the 3D6 antibody, and pharmaceutical compositions comprising same, which is not required by any of the other groups.

Group 2 is drawn to the special technical feature of an isolated polypeptide comprising SEQ ID NO: 2 and 4, variants comprising same, which is not required by any of the other groups.

Group 3 is drawn to the special technical feature of an isolated nucleic acid encoding the 3D6 antibody, vectors, and host cell comprising same, which is not required by any of the other groups.

Group 4 is drawn to the special technical feature of a method for identifying residues amenable to substitution in a humanized immunoglobulin variable framework region, which is not required by any of the other groups.

Group 5 is drawn to the special technical feature of the 10D5 antibody, a method of preventing or treating an amyloidogenic disease in a patient comprising using the 10D5 antibody, and pharmaceutical compositions comprising same, which is not required by any of the other groups.

Group 6 is drawn to the special technical feature of an isolated polypeptide comprising SEQ ID NO: 14 and 16, variants comprising same, which is not required by any of the other groups.

Group 7 is drawn to the special technical feature of an isolated nucleic acid encoding the 10D5 antibody, vectors, and host cell comprising same, which is not required by any of the other groups.

Continuation of B. FIELDS SEARCHED Item 3:
WEST (USPT, PGPUBS, USOCR, JPO, EPO, DERWENT); NCBI (PUBMED); STN (BIOSCIENCE)
mAb 3D6, anti-amyloid-beta, Alzheimers disease, passive immunization, mAb 10D5, mAb 266